

CLAIMS

What is claimed is:

1. A double locking mortise joint comprising:

(a) a first member having:

- i) a first mortise being formed generally perpendicularly with respect to an axis of said first member, said first mortise having:
 - 1) a gusset top extending generally perpendicularly outward with respect to said axis of said first member;
 - 2) a head bottom opposite to and generally parallel to said gusset;
 - 3) a first mortise end being generally parallel to said axis of said first member and connecting said gusset top and said head bottom;
- ii) a first contact surface and a second contact surface next to said first mortise end;

(b) a second member having:

- i) a second mortise having two opposing sides being generally parallel to each other, and a second mortise end connecting said two opposing sides;
- ii) a top surface and a bottom surface next to said second mortise end;

whereby said first member and said second member are rigidly and snugly yet removably joined together at the first mortise and second mortise by fitting said gusset top and said head bottom between said

two opposing sides of said second mortise, such that said head bottom extends onto said top surface, said gusset top extends onto said bottom surface, and said two opposing sides extend onto said first contact surface and said second contact surface.

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2. The double locking mortise joint of claim 1, wherein said head bottom is not longer in length than said gusset top.

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3. The double locking mortise joint of claim 1, wherein said first mortise further comprises a first corner and a second mortise corner, said first mortise corner being located between said first mortise end and said head bottom, said second mortise corner being located between said first mortise end and said gusset top, and at least one of said two mortise corners is square-edged.

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4. The double locking mortise joint of claim 3, wherein both of said two mortise corners are square-edged.

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5. The double locking mortise joint of claim 3, wherein both of said two mortise corners are rounded.

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6. The double locking mortise joint of claim 1, wherein said first member is a table leg, and said second member is a corner of a tabletop.

- | Parameter | Value | Unit |
|---|--|-------|
| Initial concentration of H_2O_2 | 0.01 | M |
| Initial concentration of Fe^{2+} | 0.001 | M |
| Initial concentration of H^+ | 0.1 | M |
| Temperature | 25 | °C |
| Reaction time | 0-10 | min |
| Reaction rate | 0.001 | M/min |
| Reaction order | 1 | - |
| Reaction mechanism | Free radical chain reaction | - |
| Reaction products | Fe^{3+} , H_2O , O_2 | - |
| Reaction conditions | Dark, sealed | - |
| Reaction medium | Aqueous solution | - |
| Reaction vessel | 100 mL beaker | - |
| Reaction setup | Stirrer, thermometer | - |
| Reaction safety | Wear gloves, goggles | - |
| Reaction disposal | Neutralize with NaOH | - |
| Reaction storage | Store in dark | - |
| Reaction maintenance | Check pH regularly | - |
| Reaction troubleshooting | Check reagent purity | - |
| Reaction optimization | Adjust concentration | - |
| Reaction validation | Repeat experiment | - |
| Reaction documentation | Record data | - |
| Reaction analysis | Use spectrophotometer | - |
| Reaction interpretation | Compare results | - |
| Reaction conclusion | Reaction is first order | - |
| Reaction recommendation | Use fresh reagents | - |
| Reaction note | Reaction is exothermic | - |
| Reaction reference | See literature | - |
| Reaction appendix | See appendix | - |
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